



Test Process Improvement (TMMi) in the area of DevOps and AI

Quality makes products
which do not return
and customers who do

Erik van Veenendaal

www.erikvanveenendaal.nl

Erik van Veenendaal

www.erikvanveenendaal.nl



- In IT & testing since 1985 working for many different clients and in many different roles
- Author “TMap”, “ISTQB Foundation” and “TMMi” and many other books and papers
- Former Vice-President International Software Testing Qualifications Board (ISTQB)
- TMMi Foundation Management Executive
- Winner European & ISTQB International Testing Excellence Award

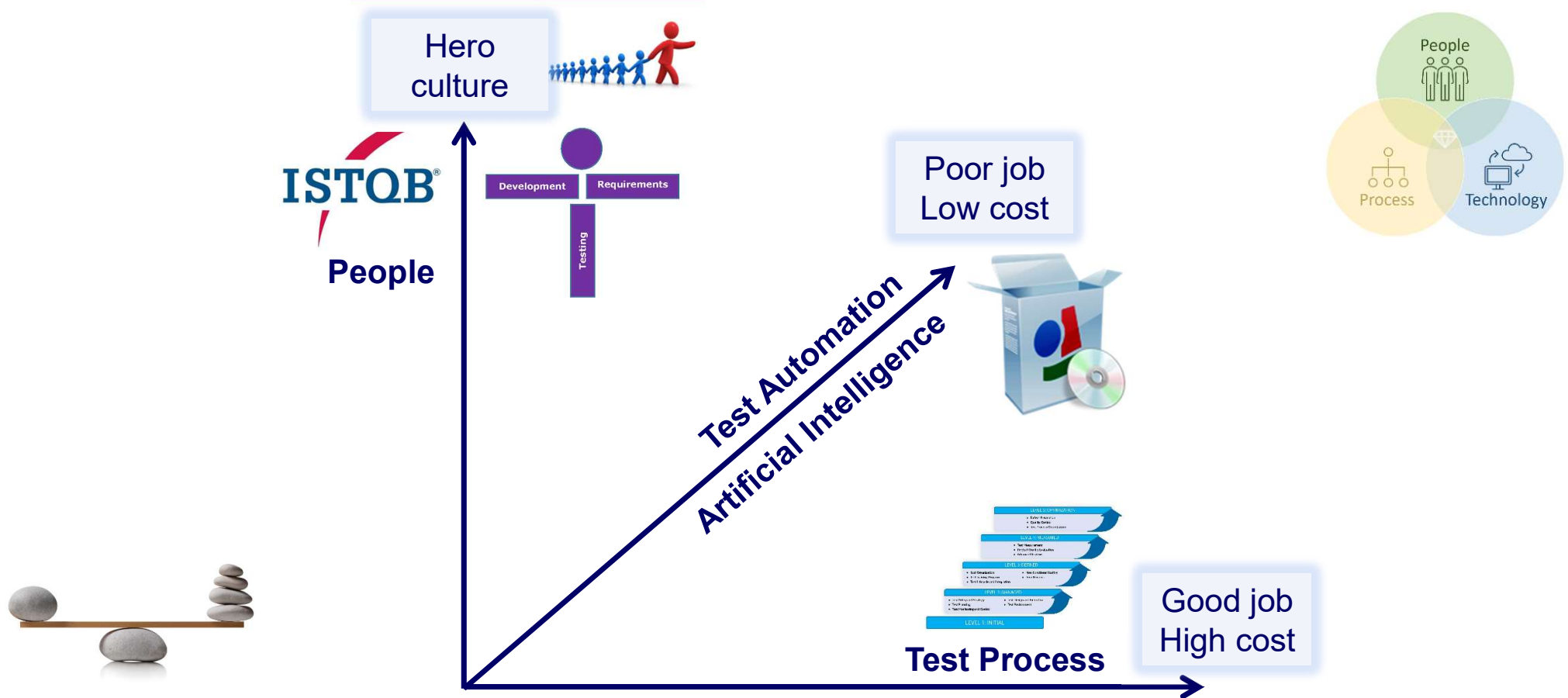


Common Testing Challenges

- Increasing business importance
- Increasing code size and complexity
- New technologies
- Systems-of-systems
- Variety of devices, OS's, browsers
- Security vulnerabilities
- Time-to-market critical



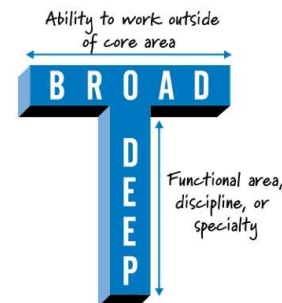
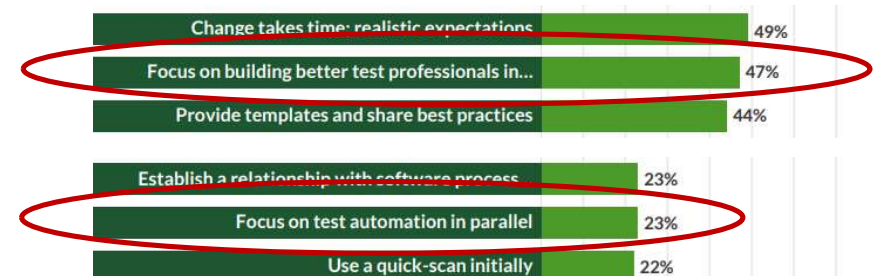
Test Improvement Directions



People

- **NOT** just an ISTQB Foundation training
- Meet-up's sharing experiences
- Build a best practices library
- Coaching
- How to ..workshops
- Testing recognized as a profession
- TMMi level 3

Advice to others



Testing is a difficult and intellectually challenging task

TMMi Model

- TMMi Foundation (2005)
 - Develop the TMMi model
 - Framework TMMi assessments (ISO 33020), formal certification
- TMMi model published in 2010
 - ISO & IEEE std.'s, ISTQB, CMMI, best practice surveys
- Independent model
 - Lifecycle, testing method
- TMMi Local Chapters
 - Local marketing, translations
 - Ensure assessment & training capability



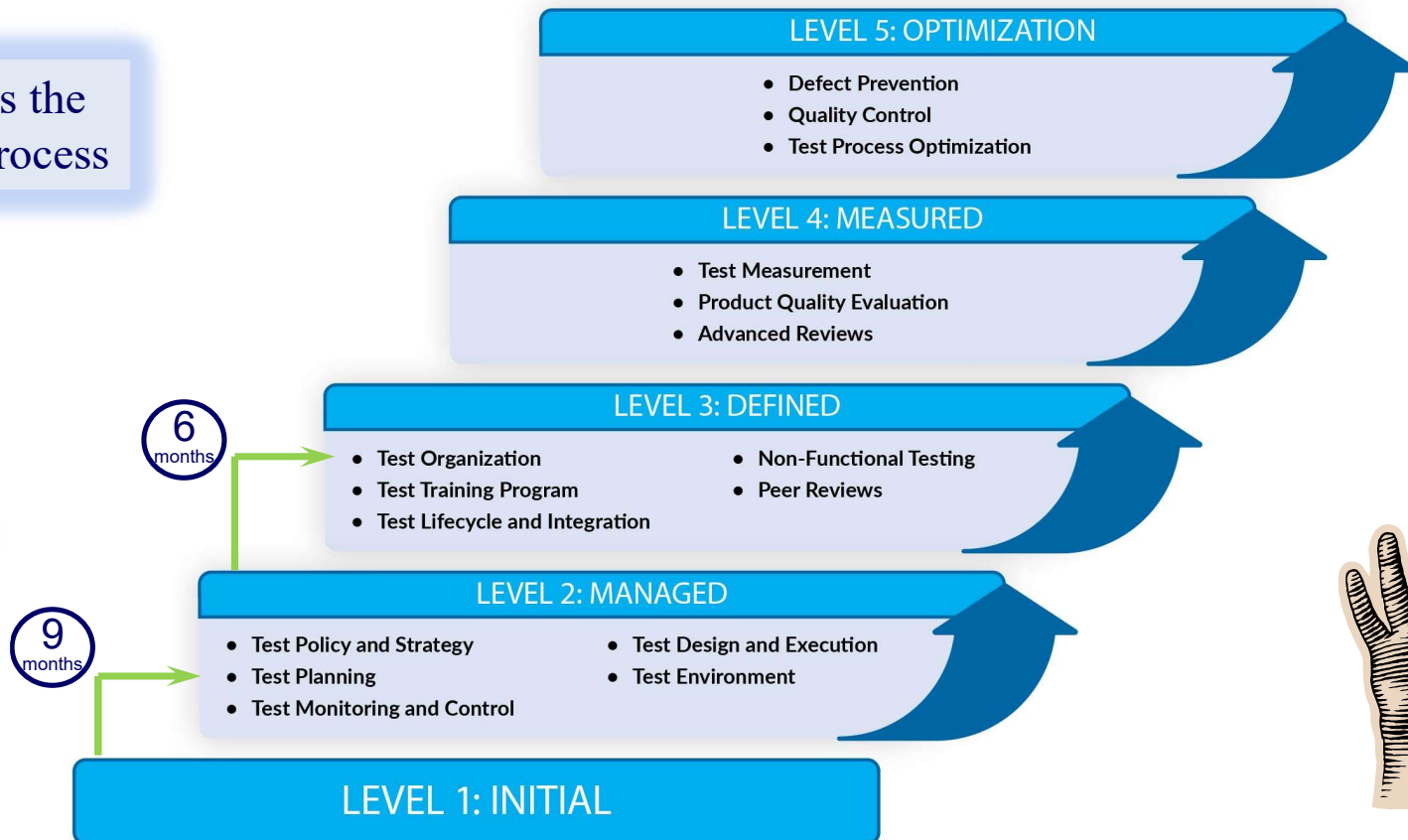
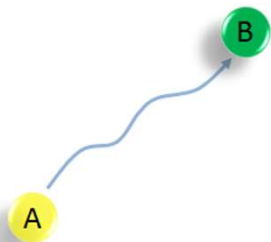
31 LC's covering 83 countries

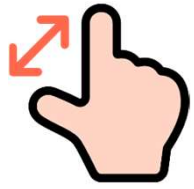
TMMi certified organizations

TMMi Process Areas

majority is at TMMi level 1

priorities and focus the
test improvement process

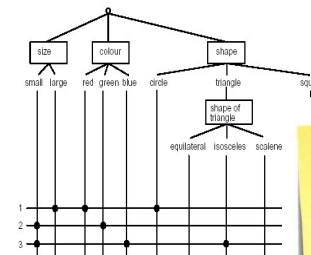
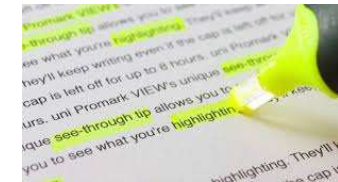




TMMi Level 2: Managed

- Test Policy and Strategy
- Test Planning
- Test Monitoring and Control
- Test Design and Execution
- Test Environment

Project oriented
process areas



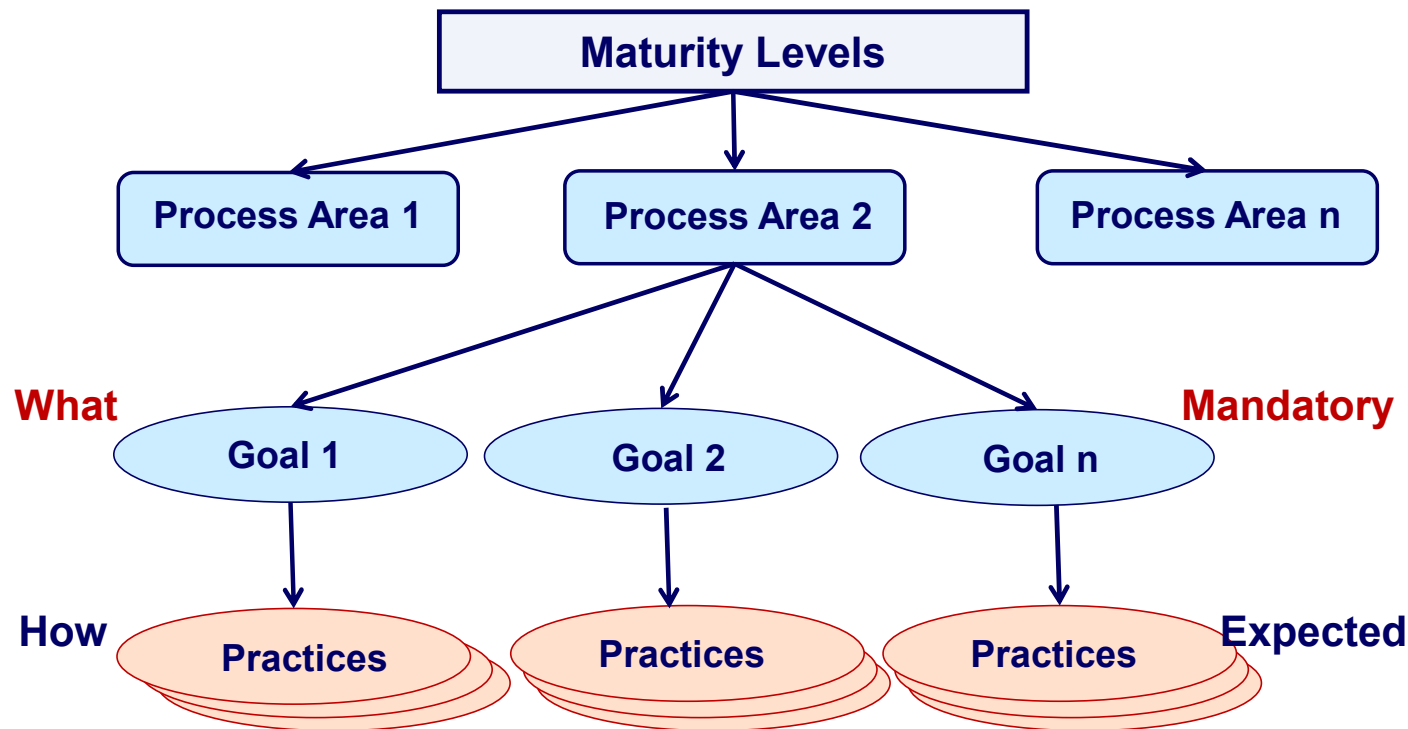
As a <role>
I want <goal>
So that <benefit>

Acceptance criteria:

...



TMMi Structure

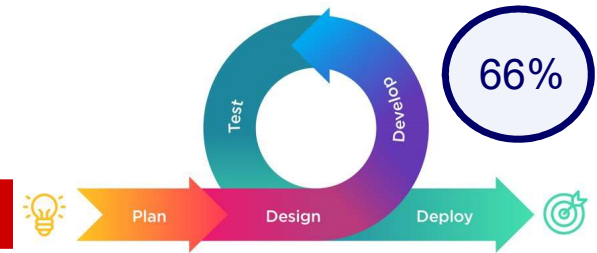


Test Planning goals

1. Risk Analysis
2. Test Approach
3. Test Estimation
4. Test Plan
5. Commitment



TMMi in Agile context (phase 1)



- Many are struggling, benefits $\neq$ product quality
 - changing priorities, project visibility, time-to-market, efficiency
- TMMi reminds you of critical testing goals & practices
 - there is more than unit testing, test automation and exploratory testing
- Look for alternative (Agile) practices
 - risk poker, one page test plan, acceptance criteria, etc.
- Need some process without losing Agile culture
 - balancing self-empowered teams with “standard” test process

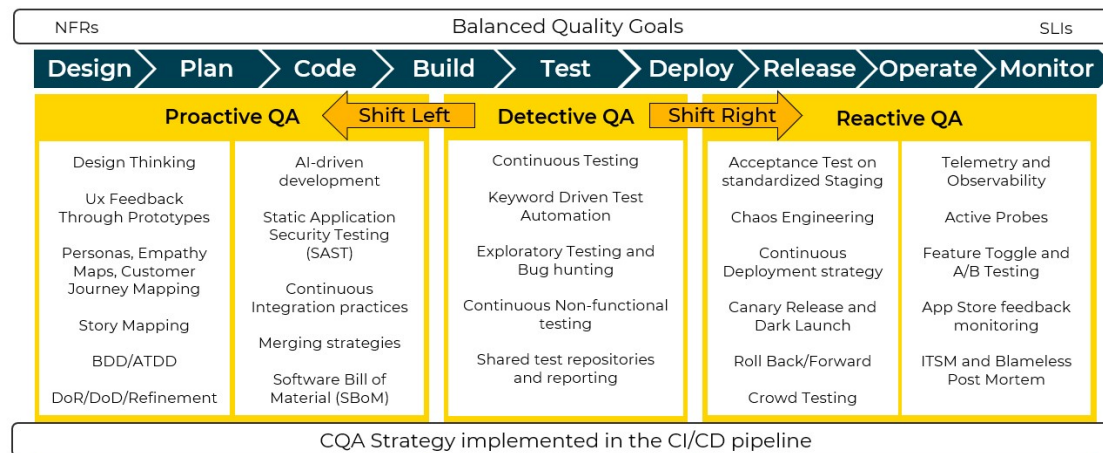
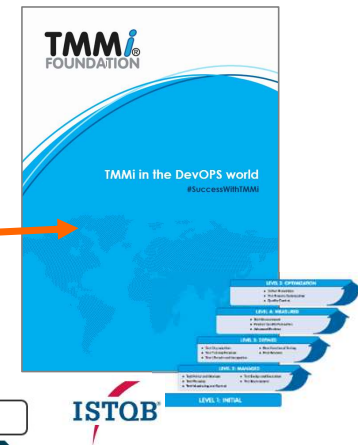


No more Testers!!

TMMi in DevOps context (phase 2)

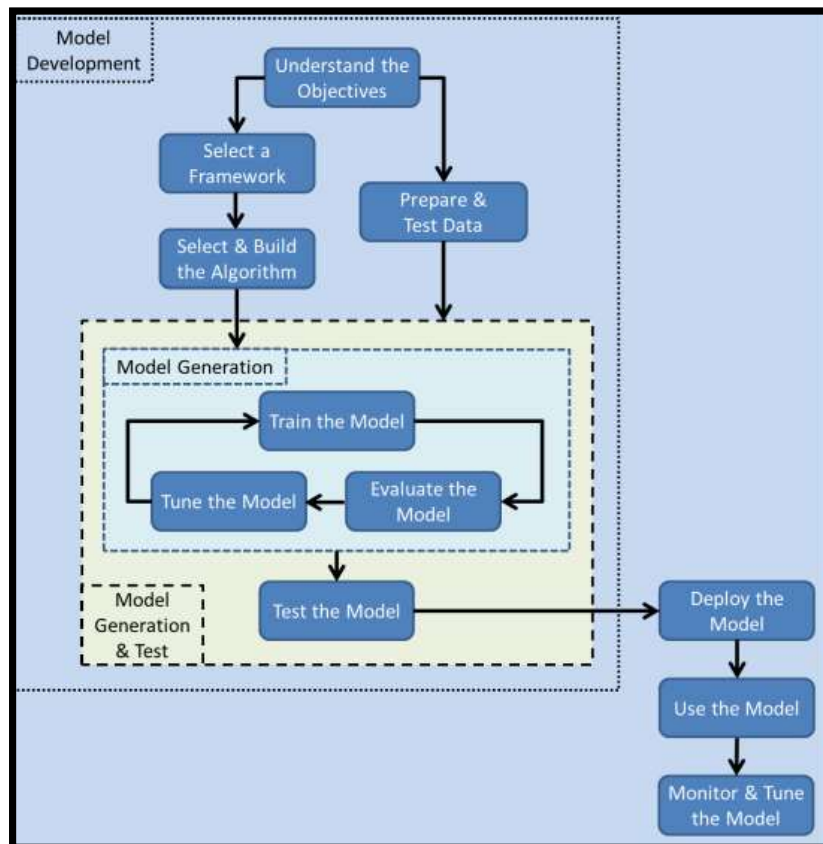


- Business drivers, but also risk
- Technology driven, automate “everything”
 - shift left & CI practices build on Agile
- Look for alternative (DevOps) practices
- Need some process without losing DevOps culture



No more Testers!!

TMMi & AI - (1) Testing AI Systems



Characteristics

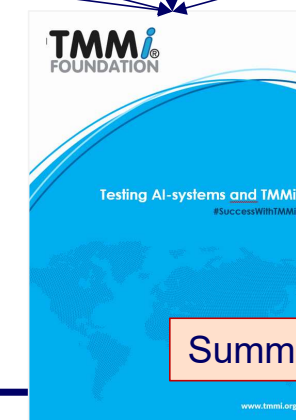
Flexibility
Adaptability
Evolution
Bias
...

Exit criteria

Accuracy
Precision
Recall
F1-score
...

Techniques

Pairwise
Back-to-back
A/B testing
Metamorphic
...



Summer 2025

TMMi & AI - (2) Using AI in Testing

- Technology  ... to manage the challenges, be more efficient
- Trust is key!
- Product Risk Analyses (Test Planning)
 - E.g., Defect Prediction
- Test Design and Execution
 - E.g., Test Analysis and Design 
- You need data !!
- You need maturity !!

1. Ambiguities and Vague Language	
Requirement Statement	Issue
"Raise the profit of the company by 10% within 6 months..."	Business goal, not a software/hardware requirement; also not actionable by the developers. How will the product cause profit to increase?
"Wake up sleeping needle more smoothly."	"More smoothly" is subjective and undefined. What does "smoothly" mean? How can it be measured or tested?
	How small? How lightweight? Needs specific dimensions/weight.
	Very easy" is subjective. No usability metric or reference provided.
	What level of reliability? MTBF? Percentage uptime? Error tolerance? Needs quantitative definition.

Representative Test Cases with Expected Results							
TC	Civil Status	Postal Code	Worked	Age	Children	Expected Benefit	Reason
1	Not married	4000	No	30	0	3,500	No additional conditions met
2	Married	4000	No	30	0	5,000	Married → +1,500
3	Not married	5100	No	30	0	5,000	In special postal code → +1,500
	Married	5200	Yes	45	0	6,500	+1,500 (married), +1,000 (worked & >40)
5	Not married	4700	Yes	45	0	4,500	+1,000 only (worked & >40)
6	Married	4800	No	35	4	5,500	+1,500 (married), +500 (fallback rule: married & 4 children)
7	Not married	5300	Yes	41	4	6,500	+1,500 (postal), +1,000 (worked & >40)
8	Married	5400	Yes	39	4	5,000	+1,500 (married) only, age ≤ 40, so fallback doesn't apply

TMMi Process	AI support
Test Planning	Defect Prediction
....	



 **No more Testers!!**

TMMi Benefits

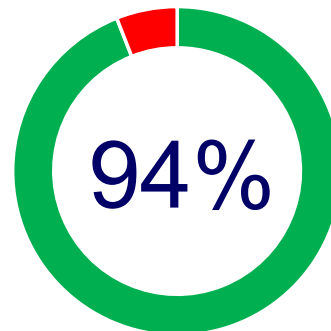


WORLD-WIDE USER SURVEY

2022/2023

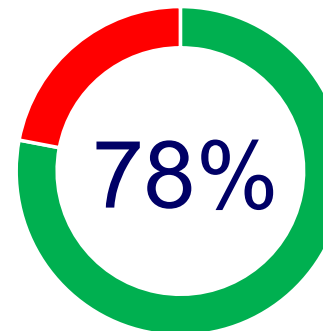
Product Quality

Enhanced product quality
Reduced product risks
Reduced number of defects



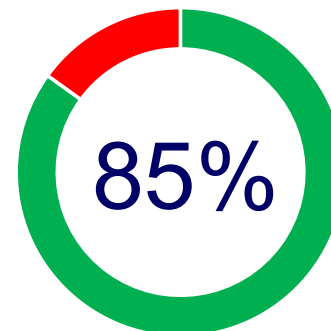
Test Efficiency

Increased test productivity
Accelerated software delivery
Reduced project costs



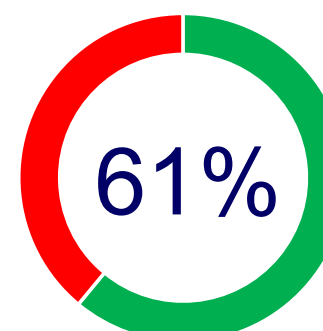
Compliance

Achieved TMMi certification
Achieved standard compliance



People

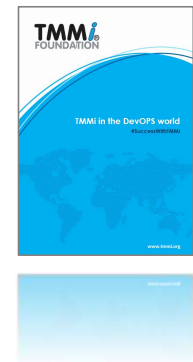
Improved test engineering discipline
Improved team morale



TMMi Course Evaluation



- Objective Driven
- ISTQB related
- Well-founded
- Clear Priorities
- Self-Assessments
- Freely Available
- Also to be used with Agile & DevOps
- Open community
- On-going development (e.g., AI, V2)





www.erikvanveenendaal.nl

A TMMi page with all documents for download



[erik-van-veenendaal-9663972](#)

I will keep you updated on TMMi

No More Testers, or

There has never been a time when software testers were needed more!

**THANK
YOU!**

